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WHAT IS CLAIMED IS:

1. A catheter device comprising:
first, second and third lumens, wherein at least one of said lumens is fabricated
from a material sufficient for delivery of an acidic dissolution solution; and
5 a first vascular occlusion means.
2. The catheter device according to Claim 1, wherein at least two of said lumens are
coaxial.
- 10 3. The catheter device according to Claim 1, wherein said first, second and third
lumens are coaxial.
4. The catheter device according to Claim 3, wherein said first lumen is present in a
first fluid delivery member having a distal end, wherein said first fluid delivery member is
15 movable relative to said second and third lumens.
5. The catheter device according to Claim 3, wherein said second lumen is present in
a second fluid delivery member, where said second fluid delivery member is movable
relative to said third lumen.
- 20 6. The catheter device according to Claim 4, wherein said first lumen is open at said
distal end of said first fluid delivery member.
7. The catheter device according to Claim 4, wherein said first lumen opens at at
25 least one location on said first fluid delivery member at a site proximal to said distal end.
8. The catheter device according to Claim 7, wherein said first fluid delivery member
comprises a second vascular occlusion means at said distal end.

9. A catheter device comprising:
- (a) an inner first tubular member;
 - (b) a middle second tubular member; and
 - (c) a third outer tubular member having a first vascular occlusion means;
- 5 wherein said tubular members are coaxial and are movable relative to each other, and further wherein each of said tubular members:
- (i) has a proximal and distal end; and
 - (ii) comprises a lumen.
- 10 10. The catheter device according to Claim 9, wherein said lumen of said first tubular member opens at said distal end of said first tubular member.
11. The catheter device according to Claim 9, wherein said lumen of said first tubular member opens at a site proximal to said distal end of said first tubular member.
- 15 12. The catheter device according to Claim 11, wherein said first tubular member comprises a second vascular occlusion means at its distal end.
13. A catheter system comprising:
- 20 (a) an aspiration catheter comprising an elongated tube having an aspiration lumen ending in an open distal end and an inflatable balloon at said distal end; and
 - (b) a second elongated tube coaxially positioned inside of said aspiration catheter; and
 - (c) at least one of:
- 25 (i) a total occlusion catheter insert comprising an elongated tube having an open distal end; and
 - (ii) a partial occlusion catheter insert comprising an elongated tube having a sealed distal end, an inflatable balloon at said distal end and at least one infusion port proximal to said inflatable balloon;

wherein at least said total and partial occlusion catheter inserts are capable of being slidably positioned within said second elongated tube to produce an annular space at the distal end of said elongated tube through which fluid may flow.

5 14. The catheter system according to Claim 13, wherein said system comprises both said partial and total occlusion catheter inserts.

15. The catheter system according to Claim 13, wherein at least one of said elements (a), (b) and (c) further comprises a separate guidewire lumen.

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16. The catheter system according to Claim 13, wherein said aspiration catheter is in fluid communication with a negative pressure source.

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17. The catheter system according to Claim 13, wherein said second elongate tubular member is in fluid communication with a buffer solution source.

18. The catheter system according to Claim 13, wherein said catheter inserts are in fluid communication with an acidic solution source.

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19. A method of enhancing fluid flow through a vascular site occupied by a vascular occlusion, said method comprising:

simultaneously flushing said vascular site with:

(i) an acidic dissolution fluid; and

(ii) a buffer solution;

25

for a period of time sufficient for fluid flow to be enhanced through said vascular site;

wherein said simultaneous flushing occurs in a manner such that only a surface of said vascular occlusion is contacted with said acidic dissolution fluid and the remainder of said vascular site is not contacted with solution having a pH of less than about 4;

whereby fluid flow is enhanced through said vascular site.

20. The method according to Claim 19, wherein said vascular occlusion comprises
5 calcium.

21. The method according to Claim 19, wherein said occlusion is a total occlusion.

22. The method according to Claim 19, wherein said occlusion is a partial occlusion.
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23. The method according to Claim 19, wherein a catheter device according to Claim
1 is used to flush said surface of said vascular occlusion.

24. A system for enhancing fluid flow through a vascular site occupied by a vascular
15 occlusion, said system comprising:

- (a) a catheter device according to Claim 1;
- (b) a manifold;
- (c) an acidic fluid dissolution reservoir in fluid communication said first
lumen;
- 20 (d) a buffer solution reservoir in fluid communication with said second lumen;
and
- (e) a source of negative pressure in fluid communication with said third
lumen.

25 25. The system according to Claim 24, wherein said system further includes a balloon
inflation means.

26. The system according to Claim 24, wherein said balloon inflation means is a
syringe.

27. The system according to Claim 24, wherein said system further comprises a guidewire.
- 5 28. A kit for use in enhancing fluid flow through a vascular site occupied by a vascular occlusion, said kit comprising:
a catheter device according to Claim 1.
29. The kit according to Claim 28, wherein said kit comprises the catheter system
10 according to Claim 13.
30. The kit according to Claim 28, wherein said kit further comprises a guidewire.
31. The kit according to Claim 28, wherein said kit further comprises an imaging
15 agent.
32. The kit according to Claim 28, wherein said kit further comprises an acidic dissolution solution.
- 20 33. The kit according to Claim 28, wherein said kit further comprises a buffer solution.